

ABSTRACT

A system and method improves ECCM and data payload for a multi-h continuous phase modulated waveform with the addition of frequency hopping capabilities. The system and method exploit the short constraint length and rotational invariance of the multi-h CPM waveform to enable frequency hopping using current system capabilities. The transmitted data is structured such that the initial phase state of each hopping frame is in the zero state and the final phase state of each hopping frame is cycled to zero by the addition of flushing symbols and transition symbols. The transition symbols allow the oscillator to change frequency without disrupting the phase progression. The system and method uses synchronous demodulation of the transmitted data at a plurality of phase offsets and determines the best phase offset based on the total sum of the branch metrics for each symbol and phase offset. The system and method alternatively demodulated with a phase offset that is tracked and adjusted over each hop by accumulation of the frequency error.